

tions and alterations. The book opens with a short treatise on the physical geography of the sea, in which we have a picturesque general description of the sea, its waves, tides, and currents, and their causes, and of the "aerial and terrestrial migrations of the waters," the latter including an account of the winds and of the circulation of the water evaporated from the ocean through the atmosphere to the surface of the land and back again to its source. To this section of the book the author has added two new chapters, containing descriptions of some marine caves and of certain marine constructions, chiefly lighthouses.

It is to the second part of his work, which treats of the inhabitants of the sea, that the author has evidently devoted his chief attention; and he has succeeded in giving a good popular account of the principal forms of marine animals and plants. In comparing this section of Dr. Hartwig's book with that in the first edition, we find that, without making it very technical, he has put it in such a form as to convey a very fair general notion of the modern classification of animals and of the peculiarities characteristic of the chief types belonging to each great group which is represented among the population of the sea; the chapter on the Crustacea has been reconstructed and made much fuller, especially with respect to the metamorphoses which most of those animals undergo; a brief account of some marine Rotifera has been appended to the chapter on marine worms; the description of the Mollusca has been considerably added to and improved; and the account of the Cœlenterata has been entirely rewritten on quite a new plan. We notice also that the Diatoms have been removed from their former position among the Infusoria and placed with the marine plants. In the chapter on the geographical distribution of marine life, Dr. Hartwig has availed himself of the results obtained by recent researches in the abyssal waters of the Atlantic.

The third and concluding part of the book is devoted to a brief sketch of the history of maritime discovery, with which we have nothing to do here, but which will doubtless enhance its value in the eyes of those young readers for whose delectation it is particularly designed. On the whole we are not acquainted with any better gift-book than Dr. Hartwig's volume, almost the only defect of which consists in the miserably small size and generally poor execution of many of its numerous natural-history illustrations. We notice, however, as a sign of better things, that most of the new woodcuts are on a larger scale and fairly executed; so that we may hope in course of time, as more editions are called for, the paltry little old blocks will be gradually eliminated.

Outlines of Natural History for Beginners, being Descriptions of a Progressive Series of Zoological Types. By H. ALLEYNE NICHOLSON, M.D. &c. 12mo. Blackwood: Edinburgh and London, 1873.

DR. NICHOLSON has added one more to his already long list of educational works; but we do not think that his 'Outlines of

Natural History' will fulfil the object with which the book has been produced. Its *raison d'être* is stated by the author, in his preface, as follows:—"It has been recently asserted," he says, "that zoology is not a subject which can be profitably taught in schools . . . ; and the present work is an attempt to solve, upon a new basis, the problem how the facts of natural history can be imparted to the previously uninstructed beginner in such a manner that he may obtain some real knowledge of the subject, and not a mere parrot-like acquaintance with a greater or less number of technical names." With this purpose in view, Dr. Nicholson has selected a series of types representing the classes adopted in his former manuals: he describes the structure of these in popular language, and points out at the end of each description what characters of the type are common to the rest of the class to which it belongs. It is evident that the amount of zoological knowledge thus conveyed is very limited; and as the very essence of such knowledge consists in a more or less exact and extended acquaintance with the various forms which the same type of structure can put on in its different living manifestations, it is clear that the zoological ideas to be acquired by the learner from this book will be of a peculiarly imperfect kind.

The value of such a work as Dr. Nicholson's must depend greatly on the selection of the types; and among the lower classes of the animal kingdom, at all events, it is almost impossible to select types* which shall really be good general representatives of their classes. In the book before us, *Amœba* serves as the type of the Rhizopoda, *Hydra* of the Hydrozoa, a rotifer of the Scolecida, and the leech of the Annelida.

It seems to us that what is needed in order to popularize the study of zoology among the young is a treatment of the subject in a rather more picturesque style, a recognition that the creatures treated of are living beings with most interesting habits and functional peculiarities to be studied, and not mere agglomerations of organs to be anatomized. This purpose Dr. Nicholson's new manual does not fulfil; and for teaching junior classes we should greatly prefer his little 'Introductory Text-book of Zoology.'

Endomyceici Recitati. A Catalogue of the Endomyceici, &c., with Descriptions of New Species and Notes. With a Plate by E. W. Robinson. By HENRY STEPHEN GORHAM, Vicar of Shipley, Sussex. Williams and Norgate.

UNDER the above singular title Mr. Gorham has given us a useful catalogue of the Coleopterous family Endomychidæ. The number of species belonging to it is not large, with the new species here described amounting to 302, arranged under 46 genera. The author names the Endomychidæ a "group," here called Endomyceici; and its sub-families he elevates to the rank of families, with the addition of one bearing the very awkward name of Paussidoidæ. No reason for these alterations is given; so we suppose we must attribute them to the illusive eccentricity of inexperience; but they are to be regretted both as unnecessary and as tending to give a low idea of the logical